

# ESL Commercial Wireless Smoke Detector

60-992-900



## Installation Instructions (PRELIMINARY)

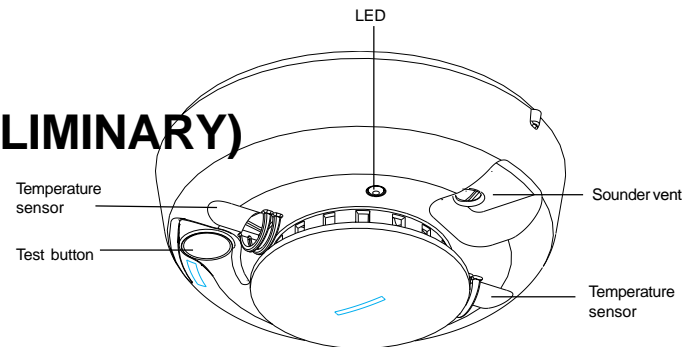


Figure 1. Detector Features

### Product Summary

The ESL Supervised Commercial Wireless Smoke Detector is UL Listed (UL 268) for use in commercial applications. The unit combines a photoelectric smoke detector with an integrated fixed 135°F temperature and rate-of-rise heat detector, and a Learn Mode transmitter for use with compatible wireless control panels (see “Specifications” on back page).

### Detector Operation

Under normal non-alarm conditions, the detector LED (light-emitting diode) flashes once every nine seconds while monitoring the surrounding conditions. The detector transmits a supervisory signal every 64 minutes indicating its status, which the panel receives and processes accordingly.

In an alarm condition due to smoke or heat, the LED changes from flashing to on and the built-in sounder emits a temporal 3 pattern (a repeated series of three beeps followed by a short pause). The detector also transmits an alarm signal, which the panel receives and processes accordingly.

A built-in tamper switch activates whenever the detector is removed from its mounting base, causing the detector to transmit a tamper signal which the panel receives and processes accordingly.

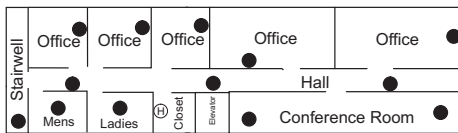
The detector is powered by two 3-volt lithium batteries (included). When the battery voltage gets low, the detector transmits a low battery signal which the panel receives and processes accordingly. If the batteries are not replaced within seven days, the detector’s built-in sounder emits a short beep or chirp every 45 seconds.

The detector also includes self-diagnostics, automatically adjusting its sensitivity accordingly to reduce the number of detector cleanings. When cleaning becomes necessary, the detector has a field-replaceable optical chamber.

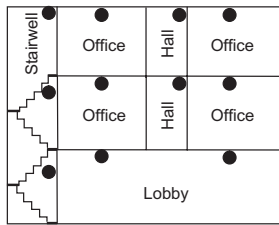
### General Guidelines

- Before mounting detectors, program (learn) them into panel memory and perform a sensor test from the detector’s intended location, to ensure good RF communication to the panel.
- Locate the detector in environmentally controlled areas where the temperature range is between 40° and 100°F (4.4° and 37.8°C) and the humidity is between 0 and 90% non-condensing.
- Locate detectors away from ventilation sources that can prevent smoke from reaching the detector.
- Locate ceiling mounted detectors in the center of the room or hallway, at least 4 inches (10cm) away from any walls or partitions.
- Locate wall mounted detectors so the top of the detector is 4 to 12 inches (10 to 31cm) below the ceiling.
- In rooms with sloped, peaked, or gabled ceilings, locate detectors 3 feet (.9 meters) down or away from the highest point of the ceiling.
- When mounting to suspended ceiling tile, the tile must be secured with the appropriate fastener to prevent tile removal.

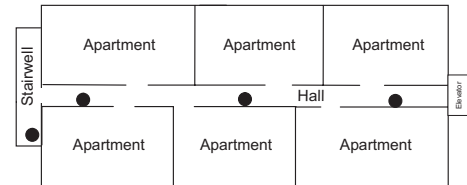
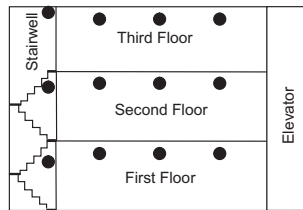
**Note:** Do not mount the detector to the metal runners of suspended ceiling grids. The metal runners can draw the magnet’s field away from the detector’s reed switch, causing a false tamper alarm



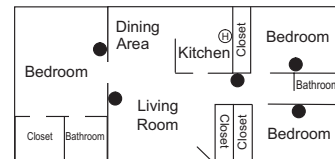
In commercial buildings a smoke detector should be located in each room.



A smoke detector should be located on each level.



In multifamily dwellings, smoke alarms/detectors should be located in hallways and stairwells of each level.



Smoke alarms/detectors should be located in the living area, hallway, and in each bedroom of the apartment.

**Figure 2. Detector Placement**

## NFPA Guidelines

**NFPA 72, 5.5.2.1 Total (Complete) Coverage.** If required and unless otherwise modified by 5.5.2.1.1 through 5.5.2.1.6, total coverage shall include all rooms, halls, storage areas, basements, attics, lofts, spaces above suspended ceilings, and other subdivisions and accessible spaces as well as the inside of all closets, elevator shafts, enclosed stairways, dumbwaiter shafts, and chutes.

**NFPA 72, 5.5.2.2\* Partial Coverage.** Where partial coverage is required, detection devices shall be provided in all common areas and work spaces, such as corridors, lobbies, storage rooms, equipment rooms, and other tenantless spaces where detection operation is in accordance with this Code for environment in those spaces.

**NFPA 72, 5.5.2.3\* Selective Coverage.** Where codes, standards, laws, or authorities having jurisdiction require the protection of selected areas only, the specified areas shall be protected in accordance with this Code.

**NFPA 72, 5.5.2.4.1 Nonrequired Coverage.** Where installed, detection that is not required by an applicable law, code, or standard, whether total (complete), partial, or selective coverage, shall conform to the requirements of this Code.

*Exception: Spacing requirements of Chapter 5.*

**NFPA 72, 5.5.2.4.2** Where nonrequired detection devices are installed for a specific hazard, additional nonrequired detection devices shall not be required to be installed throughout an entire room or building.

**NFPA 72, 5.6 Heat-Sensing Fire Detectors** Heat-sensing fire detectors shall be installed in all areas where required by other NFPA codes and standards or by the authority having jurisdiction.

**NFPA 72, 11.5.3.1 New Apartment Buildings, Detection.** Where required by applicable laws, codes, or standards for the specified occupancy, approved single- and multiple-station smoke alarms shall be installed as follows:

- (1) In all sleeping rooms
- (2) Outside of each separate sleeping area, in the immediate vicinity of the sleeping rooms
- (3) On each level of the dwelling unit, including basement

**NFPA 72, 11.5.4.1 Existing Apartment Buildings, Detection.** Where required by applicable laws, codes, or standards for the specified occupancy, approved single- and multiple-station smoke alarms shall be installed as follows:

- (1) Outside of each separate sleeping area, in the immediate vicinity of the sleeping rooms
- (2) On each level of the dwelling unit, including basement

*Exception: Single-station smoke alarms without a secondary (standby) power source shall be permitted..*

## ***Locations to Avoid***

Do not install smoke detectors:

- in or near areas where combustion particles are normally present such as in kitchens, garages, near furnaces, hot water heaters, or gas space heaters.
- on the ceiling in rooms next to kitchens where there is no transom between the kitchen and such rooms.
- in damp or very humid areas or next to bathrooms with showers. Locate detectors at least 5 feet (1.5 meters) away from bathrooms.
- in very cold or very hot areas.
- in dusty, dirty, or insect infested areas.
- near fresh air inlets or returns or excessively drafty areas. Heating/air conditioning vents, fans, and fresh air intakes can drive smoke away from smoke detectors.
- in dead air spaces at the top of peaked ceilings or in corners where walls and ceiling meet. Dead air may prevent smoke from reaching a smoke detector.
- near fluorescent light fixtures. Locate smoke detectors at least 10 feet (3 meters) away from these fixtures.

## ***Limitations***

Smoke detectors may not work under all conditions. Smoke detectors cannot provide total protection of life or property and are not a substitute for insurance. All detectors are subject to possible compromise or failure-to-warn for a variety of reasons. For example:

- This smoke detector will not operate and an alarm will not sound if its batteries are dead, removed, or not installed correctly.
- Radio signals transmitted by this smoke detector may be blocked or reflected by metal objects. Adjacent devices or systems using radio frequency signals may interfere with the operation of this detector. Test the system weekly to ensure signals are transmitted and received properly.
- Closed or partially closed doors and distance can block or reduce the alarm sound from this detector. This detector is not designed for the hearing impaired.
- Smoke detectors cannot detect smoke inside chimneys, walls, roofs, or smoke blocked by a closed door.
- Smoke detectors may not detect smoke on other levels of the building.
- Smoke detectors may not warn in time when fires are caused by smoking in bed, explosions, improper storage of flammables, overloaded electrical circuits, or other hazardous conditions.

## ***Programming***

This section describes the basic steps for programming (learning) the detector into panel memory. For complete programming instructions, refer to the specific panel installation instructions.

1. Separate the detector from the mounting base by turning the detector counter clockwise about 15 degrees. The detector should snap off of the mounting base.
2. Slide the battery cover away from the detector to unsnap it and lift it off. See Figure 3.
3. Observing polarity, insert the two lithium batteries (included) into the battery compartment and replace the battery cover.
4. Attach the detector to the mounting base by lining up the alignment tab on the detector with the alignment arrow on the mounting base, then put the detector on the base and turn it clockwise about 15 degrees. The detector should snap into place. See Figure 4.
5. Put the panel into installer programming mode and proceed to the Learn Sensors menu.
6. Select the appropriate sensor group (or type) and the desired sensor number.
7. When prompted by the panel to trip the sensor, activate the detector tamper switch by separating the detector from the mounting base (see Step 1). The panel confirms programming by displaying the next available sensor number.
8. Attach the detector to the mounting base (see Step 4).
9. Exit from installer programming mode.

## ***Verify Programming and Detector-to-Panel RF Communication***

Before mounting, verify that the desired detector location provides good RF communication to the panel.

1. Put the panel into Dealer Sensor Test mode (refer to the specific panel installation instructions).
2. Take the detector to the desired mounting location.
3. Press and hold the detector test button for 4 seconds. The detector transmits a test signal.
4. Listen for the appropriate response from system sirens to determine signal integrity from the detector to the panel (refer to the specific panel installation instructions).
5. Exit from Dealer Sensor Test mode.

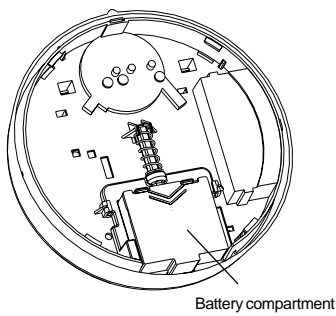


Figure 3 - Battery Compartment

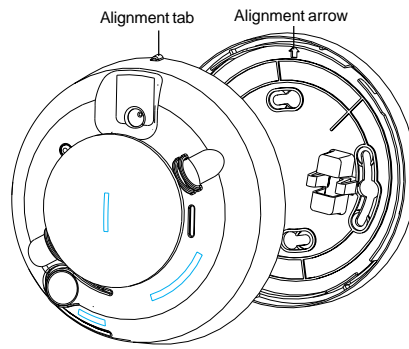


Figure 4 - Detector-to-Base Alignment

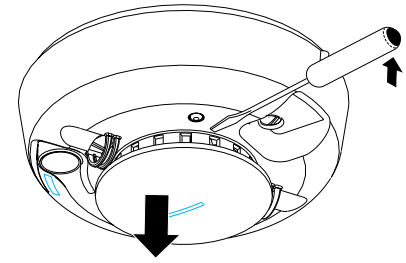


Figure 5. Removing Detector Cap

## Mounting

Mount the detector with the appropriate fasteners. Mounting hardware is included (screws and anchors), however you may need different hardware depending on the installation.

1. Separate the detector from the mounting base by turning the detector counter clockwise about 15 degrees. The detector should snap off of the mounting base.
2. Place the mounting base on the mounting surface at the desired location and mark the mounting holes using a pencil.
3. Secure the mounting base to the surface using the appropriate hardware.
4. Attach the detector to the mounting base by lining up the alignment tab on the detector with the alignment arrow on the mounting base, then put the detector on the base and turn it clockwise about 15 degrees. The detector should snap into place.

## Testing

There are three ways to test the detector: sensor test, smoke test, and sensitivity test.

### Sensor Test

The sensor test verifies good communication between the detector and receiver/panel. The sensor test should be performed weekly.

1. Put the panel into Sensor Test mode (refer to the specific panel installation instructions).
2. Press and hold the detector test button for 2 seconds. The detector transmits a test signal.
3. Listen for the appropriate response from system sirens (refer to the specific panel installation instructions).
4. After testing all detectors, exit from Sensor Test mode.

### Smoke Test

The smoke test verifies that the detector activates when detecting smoke, that the transmitted signal is received by the receiver/panel, and that the panel reports the alarm to the central monitoring station. The smoke test should be performed annually.

1. Contact the central monitoring station to alert them you are testing the system and *they should not dispatch authorities*.
2. Activate the detector using one of the following two methods:

**Method 1** Hold a smoldering punk or cotton wick close to the detector and direct the smoke into the smoke entry openings for about 20 seconds.

**Method 2** Use ESL Smoke! in a can<sup>®</sup> and follow the directions on the can.

Once activated, the transmitter LED turns on, the built-in sounder emits a temporal 3 pattern, and the detector transmits an alarm signal. The panel then processes the alarm signal and reports the alarm condition to the central station.

3. Press the detector test button to stop the built-in sounder. The detector automatically resets when smoke is no longer present and the LED should turn off and return to normal operation (one flash every 8 seconds).
4. Contact the central monitoring to verify they received the alarm report.
5. Be sure to alert the central monitoring station when you are finished testing.

## Sensitivity Test

Use this test to check detector sensitivity.

1. Press and hold the detector test button for two seconds, then release it. The detector transmits a test signal, then performs a self-test that causes the LED to flash 1 to 9 times.
2. Count the number of LED flashes, then use the following table to determine if any action is necessary.

Flashes	Indication	Action
1	Unserviceable hardware fault detected.	Reset unit by removing batteries and rerun sensitivity test. If the error persists, replace the unit.
2-3	Detector is becoming insensitive.	Clean the unit. reset unit by removing batteries and rerun sensitivity test. If the error persists, replace the unit.
4-7	<b>Detector is within sensitivity range.</b>	<b>NA</b>
8-9	Detector is becoming too sensitive.	Verify that the smoke chamber is snapped down securely. Clean the unit. Replace chamber part #211.

## Troubleshooting

The following describes how the detector indicates a fault condition. Correct fault conditions as soon as possible.

- The LED stops working (no flashing or turning on) if the detector sensitivity is not within the normal range, or if an unserviceable hardware fault is detected.
- The detector stops transmitting supervisory signals if the detector has an unserviceable hardware fault or is not sensitive enough, causing the panel to indicate the detector is in a supervisory condition. However, the detector can still transmit alarm signals.
- The detector transmits a trouble (CleanMe) signal when the detector is too sensitive. Panels supporting this feature identify the trouble as “Partial Obscurity” on system touchpad displays.

## When to Replace the Batteries

When the battery voltage gets low, the detector transmits a low battery signal for the panel to receive. The panel activates trouble beeps through the system sirens and identifies the detector with the low battery on system touchpad displays. If the batteries are not replaced within seven days, the detector’s built-in sounder emits a short beep or chirp every 45 seconds. Detector chirps can be silenced for 24 hours by pressing the detector’s test button. Batteries should be replaced as soon as possible (see “Specifications” for battery list).

## Replacing the Batteries

Use only 3V lithium batteries listed in *Specifications* in the detector.

1. Remove the detector from the mounting base.
2. Slide the battery compartment cover away from the detector to unsnap it and lift it off. See Figure 3.
3. Remove the batteries and dispose of them properly.
4. Observing correct polarity, insert two new 3V lithium batteries into the battery compartment and replace the cover.
5. Reattach the detector to the mounting base.
6. Test the system.

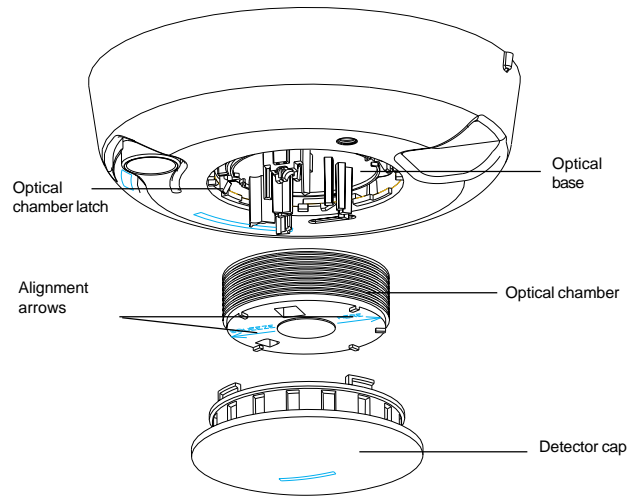
## Cleaning the Detector

Clean the detector cover with a dry or damp (water) cloth as needed to keep it free from dust and dirt.

When necessary, clean the detector interior and **replace** the optical chamber (part #211) as follows:

1. Notify the monitoring service that you will be performing maintenance to the system.
2. Remove the detector from its mounting base.
3. Remove the batteries. See *Replacing the Batteries*.
4. Slide a flat-blade screwdriver in the slot on the detector cap and gently push the handle down to pry the detector cap up and off. See Figure 5.
5. Squeeze the field replaceable optical chamber and pull it up and away from the optical base and discard. See Figure 6.
6. Blow out or use a soft-bristled brush to remove all dust and dirt from the optical base.

7. Line the new field replaceable optical chamber up with the optical base and snap into place both sides of the optical chamber.
8. Replace the detector cap as follows:
  - Line the detector cap up with the smoke detector.
  - Insert the detector cap into the smoke detector and turn clockwise approximately 15 degrees. It should snap firmly into place.
9. Observing the proper polarity, put the batteries back in the detector and replace the battery compartment cover.
10. Reattach the detector to its mounting base.
11. Test the detector sensitivity and reconnect all alarm notification appliances. See *Testing the Detector Sensitivity*.



**Figure 6. Detector Parts**

**Important !**

The control panel alarm and all auxiliary functions should be verified for a complete test of the system.

**Maintaining the Detector**

The smoke detector is designed for easy field service and maintenance. When installed and used properly, it requires minimal maintenance.

The smoke detector should be tested weekly. See *Testing the Detector Sensitivity* and *Smoke Testing the Detector*.

When a detector requires maintenance, it extinguishes its LED and sends a signal to the control panel as described in the following table.

Signal	Action required
Trouble signal	Smoke detector sensitivity range is too high and the detector needs cleaning. See <i>Cleaning the Detector</i> .
Low battery	Batteries in the detector are low. Replace the batteries.

**Planning for Emergencies**

Develop a plan to prepare for emergency situations. Discuss and rehearse your plan with everyone by doing a fire drill every few months.



**WARNING**

**Emphasize that no one should enter a building where sirens are sounding.**

**Guidelines**

- Understand how to use your fire system.
- Know the normal state of doors and windows: open, closed, or locked.
- Escape fast! (Do not stop to pack.)
- Use a different escape route if closed doors feel hot to the touch.
- Crawl and hold your breath as much as possible to help reduce smoke inhalation during your escape.
- Meet at a designated outdoor location.
- Emphasize that no one should return to the premises if there is a fire.
- Notify the fire department from a phone in another building.

**Your Floor Plan**

When establishing your escape routes, consider the following guidelines:

- Have a drawing for each building level.
- Show all exits (two exits per room are recommended).
- Show the location of stairwells and fire escapes.
- Show the location of all components of the fire system.
- Show the locations of all fire extinguishers, hoses, ladders, etc.



## **WARNING**

Smoke detectors **CANNOT** provide warnings for fires resulting from explosions, smoking in bed or other furniture, ignition of flammable liquids, vapors and gases, children playing with matches or lighters.

## ***Limited Warranty***

ESL is a brand of GE Interlogix. The manufacturer warrants this smoke detector (except batteries) to be free from defects in material and workmanship under conditions of normal use for a term of 3 years from the date of manufacture.

During the warranty period, if a GE Interlogix product or any of its components becomes defective, it will be repaired or replaced without charge.

Out-of-warranty units will be repaired at the discretion of the manufacturer or, if not, a card will be forwarded to the customer suggesting a replacement unit and the cost of that unit.

This warranty does not apply to units which have been subject to abuse, misuse, negligence or accident, or to which any modifications, alterations or repairs have been made or attempted.

This warranty is extended only to the original purchaser of the smoke detector and may be enforced only by such person. During the warranty period, if the detector or any warranted components thereof becomes defective, it will be replaced or repaired without charge at the manufacturer's discretion if returned in accordance with the following instructions:

Obtain a Return Authorization Number by calling 1-800-777-4841 or 1-800-777-1415, then carefully pack it in a well padded and insulated carton and return, postal charges prepaid to:

**Customer Service RMA#**  
**GE Interlogix**  
**2266 Second Street North**  
**North St. Paul, MN 55109**

A note should be included advising the nature of the malfunction. Care must be exercised in the proper packing of detectors returned under this warranty as GE Interlogix will not be responsible for warranty repairs to equipment damaged because of improper packing.

**The above warranty is in lieu of all other express warranties, and implied warranties of merchantability and fitness for a particular purpose are limited in duration for a period of THREE years from the date of manufacture. Under no circumstances shall manufacturer be liable to the purchaser or any other person for incidental or consequential damages of any nature, including without limitation damages for personal injury or damages to property, and however occasioned, whether alleged as resulting from breach of warranty by manufacturer, the negligence of manufacturer or otherwise. Manufacturer's liability will in no event exceed the purchase price of the product. Some states do not allow limitations on how long an implied warranty lasts, or the exclusion or limitation of incidental or consequential damages, so the above limitations and exclusions may not apply to you. Unless a longer period is required by applicable law, any action against manufacturer in connection with this smoke detector must be commenced within one year after the cause of action has occurred.**

No agent, employee or representative of the Manufacturer nor any other person is authorized to modify this warranty in any respect. Repair or replacement as stated above is the exclusive remedy of the purchase hereunder. This warranty gives you specific legal rights and you also have other rights which vary from state to state.

## ***FCC Compliance***

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

**FCC ID: B4Z-844-SMOKE**

## Specifications

Voltage.....3VDC  
 Typical average standby current ..... 35µA  
 Typical test current.....2mA  
 Typical alarm current ..... 70mA  
 Battery type ..... Duracell® 3V lithium, 123  
    Panasonic® lithium, CR123A  
    Sanyo® lithium, CR123A  
 Low battery threshold.....2.70V causes  
    low battery signal  
 Sounder ..... 85dBa at 10' temporal pattern  
 Low battery beep rate ..... 1 every 45 sec. ± 2 sec.  
 Sensitivity ..... 2.2% ± 1.3%/ft.  
 Operating temperature .....40° to 100° F (4.4° to 37.8° C)  
 Operating humidity range ..... 0-95% non-condensing  
 RFI Immunity ..... 20V/m minimum; 0-1000MHz

Color .....white  
 Alarm dimensions..... 5.6" x 2.4" (14.2cm x 6.1cm)  
 Base dimensions .....5.4" x 0.96" (13.7cm x 1.17cm)  
 Drift compensation adjustment ..... 0.5%/ft. max.  
 Heat detector specifications:  
     Rate-of-rise.....15° F/min > 105° F  
    (8.3° C/min > 40.6° C)  
     Fixed .....135° F ± 5° F  
    (57.2° C ± 2.8° C)  
 RF frequency.....902 - 928 MHz  
 Transmitter ID.....Pre-programmed, 1 Million codes  
 Modulation type.....AM  
 Signal format.....PWM  
 Signal output types.....smoke alarm, heat alarm, tamper,  
    rate-of-rise alarm, test, low battery,  
    trouble, supervisory  
 Listing ..... UL268, CSFM, CE, FCC

### For use with the following panels:

ITI: Advent Commercial Fire 60-562-03 or 60-562-06, with software versions 1.62 and higher

## Product Ordering

Model	Description
60-992-900	ESL commercial wireless smoke detector, two 3V lithium batteries, 85dBa sounder, thermal, base tamper, 319.5 MHz transmitter
<b>Accessories</b>	
SM-200	Smoke! in a can® (canned smoke) for functional testing of smoke detectors
SMEXT-1	Extension tube for Smoke! in a can®
211	Field replaceable optical chambers (set of 10)
60-933	6 pack 3V lithium batteries

Patents: 4,855,713 & 4,864,636 & 5,686,885 & 5,686,896 & 6,396,405



**GE Interlogix**

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